

## MRC 0001804

# MRC HO Drop-in Sound Decoder: Athearn MP15 for DC and DCC - Instruction Manual

Model: 0001804

## INTRODUCTION

This manual provides detailed instructions for the installation, operation, and programming of the MRC HO Drop-in Sound Decoder, specifically designed for Athearn MP15 locomotives. This decoder replaces the original Athearn circuit board, integrating advanced sound and control capabilities for both DC (Direct Current) and DCC (Digital Command Control) layouts.

The decoder features a synchronized MP-15 prime mover sound, various random locomotive sounds, and 28 accessory functions, offering comprehensive control over your model locomotive's performance and audio experience.

## FEATURES

- Direct drop-in replacement for the original Athearn MP15 circuit board.
- Integrated synchronized MP-15 prime mover sound and random associated locomotive sounds.
- 28 NMRA function capabilities for extensive sound and accessory control.
- Programmable individual sound volumes.
- Supports both 2-digit (1-127) and 4-digit (1-9999) DCC addresses.
- Programmable start voltage, acceleration, deceleration, and top voltage rates.
- Customizable speed curve and kick start function.
- Full read-back capability for programming verification.
- Supports 14, 28, and 128 speed steps.
- Selectable factory default speed curve.
- Directional lighting (FO) with a 0.2 amp rate.
- Programmable accessory lighting.
- Supports advanced consisting (CV19).
- Supports programming on the main (OPS mode).

- 1.5 amp capacity.
- Complies with Part 15 of FCC regulations.

## PACKAGE CONTENTS

- MRC HO Drop-in Sound Decoder (Model 0001804)
- 16mm x 35mm rectangular speaker
- Instruction Manual

## SETUP AND INSTALLATION

**Important:** Before beginning installation, ensure your locomotive is disconnected from all power sources. Handle the decoder by its edges to avoid static discharge or damage to components.

1. **Disassembly:** Carefully remove the shell of your Athearn MP15 locomotive according to the manufacturer's instructions.
2. **Remove Original Board:** Locate and gently remove the existing circuit board from the locomotive chassis. Note the orientation of the original board and any wire connections for reference.
3. **Install Decoder:** Position the MRC HO Drop-in Sound Decoder into the chassis, ensuring it aligns correctly with the mounting points and electrical contacts. The decoder is designed to be a direct replacement.
4. **Connect Speaker:** Connect the included 16mm x 35mm rectangular speaker to the designated speaker terminals on the decoder. Ensure correct polarity if indicated. Secure the speaker within the locomotive shell or chassis where space permits, ensuring it does not interfere with moving parts.
5. **Verify Connections:** Double-check all connections to ensure they are secure and correctly oriented.
6. **Reassemble Locomotive:** Carefully reattach the locomotive shell.



Image showing the MRC HO Drop-in Sound Decoder, a compact electronic board with various components and a speaker connection. This decoder is designed to replace the original circuit board in Athearn MP15 locomotives.

## OPERATING INSTRUCTIONS

## DC (Direct Current) Operation

When operating on a DC layout, the decoder will provide basic motor control and sound functions. The sound will typically activate as voltage is applied and increase with speed. Some accessory sounds may be triggered by rapid changes in direction or voltage. For full functionality and programmable features, DCC operation is recommended.

## DCC (Digital Command Control) Operation

The MRC HO Drop-in Sound Decoder is fully compatible with DCC systems, offering extensive control over locomotive speed, direction, lighting, and sound functions.

- **Address Programming:** The decoder supports both 2-digit (short) and 4-digit (long) addresses. Refer to your DCC system's manual for instructions on programming locomotive addresses.
- **Speed Steps:** The decoder can be configured for 14, 28, or 128 speed steps, allowing for fine control over locomotive speed.
- **Sound Functions:** Access the 28 accessory functions via your DCC controller. These functions control various sounds such as horn, bell, coupler crash, air brake, and more. Individual sound volumes can be programmed using Configuration Variables (CVs).
- **Lighting:** Directional lighting (headlights/taillights) is controlled via function 0 (F0). Additional programmable accessory lighting functions are available.
- **Advanced Consisting (CV19):** The decoder supports advanced consisting, allowing multiple locomotives to operate as a single unit under one address. Consult your DCC system's manual for details on setting up consists.
- **Programming on the Main (OPS Mode):** Most decoder CVs can be programmed while the locomotive is on the main track, provided your DCC system supports OPS mode programming. This allows for adjustments without moving the locomotive to a programming track.

For detailed programming of CVs (Configuration Variables) such as start voltage, acceleration, deceleration, top voltage rates, and custom speed curves, refer to the comprehensive CV list provided in the full MRC decoder manual (often available on the manufacturer's website).

## MAINTENANCE

The MRC HO Drop-in Sound Decoder is a solid-state electronic device and requires minimal maintenance. Follow these guidelines to ensure longevity:

- **Cleanliness:** Keep the decoder and locomotive interior free from dust, dirt, and debris. Use a soft brush or compressed air for cleaning.
- **Handling:** Always handle the decoder by its edges. Avoid touching the electronic components directly to prevent damage from static electricity or oils from your skin.
- **Storage:** When not installed, store the decoder in an anti-static bag in a cool, dry place.
- **Power Supply:** Ensure your power supply (DC transformer or DCC system) provides stable voltage within the recommended limits for HO scale model trains.

## TROUBLESHOOTING

Problem	Possible Cause	Solution
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Problem	Possible Cause	Solution
No sound or weak sound output.	Speaker not connected, incorrect speaker polarity, speaker damaged, sound volume (CV) set too low.	Check speaker connections and polarity. Inspect speaker for damage. Increase individual sound volumes via DCC programming.
Locomotive does not respond to DCC commands.	Incorrect DCC address programmed, poor track contact, decoder not receiving power.	Verify the locomotive's DCC address matches the controller. Clean track and wheel contacts. Ensure decoder is properly seated and receiving power from the track.
Lights are not working.	Function 0 (F0) not activated, wiring issue, bulb/LED damaged, programmable accessory lighting CVs set incorrectly.	Activate F0 on your DCC controller. Check wiring to lights. Inspect bulbs/LEDs. Review CV settings for accessory lighting.
Erratic locomotive behavior.	Poor electrical contact, short circuit, interference.	Check for loose wires or potential short circuits within the locomotive. Ensure track is clean and connections are solid.

## SPECIFICATIONS

- **Model Number:** 0001804
- **Product Dimensions:** 3 x 0.75 x 0.38 inches (approximate)
- **Item Weight:** 3.2 ounces (approximate)
- **Current Capacity:** 1.5 Amps
- **Speaker:** 16mm x 35mm rectangular (included)
- **Lighting Output:** Directional (F0) at 0.2 Amp rate
- **Compatibility:** HO Scale Athearn MP15 locomotives (DC and DCC)
- **FCC Compliance:** Complies with Part 15 of FCC regulations.

## WARRANTY AND SUPPORT

This MRC product is covered by a manufacturer's warranty against defects in materials and workmanship. For specific warranty terms, duration, and claim procedures, please refer to the documentation included with your purchase or visit the official Model Rectifier Corp. (MRC) website.

For technical assistance, troubleshooting beyond this manual, or to inquire about replacement parts, please contact MRC customer support directly. Contact information can typically be found on the MRC website or product packaging.